

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC • Indianapolis, IN
46268

Effective Date: 06/11/98
Product Code: 45405
MSDS: 000587

LORSBAN* 15G GRANULAR INSECTICIDE

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: LORSBAN* 15G GRANULAR INSECTICIDE

COMPANY IDENTIFICATION:

Dow AgroSciences LLC
P.O. Box 681428
9330 Zionsville Road
Indianapolis, IN 46268-1189
www.dowagro.com

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Chlorpyrifos:

O,O-diethyl-O-(3,4,6-trichloro-2-pyridinyl)phosphorothioate
CAS # 002921-88-2 15%

Proprietary inert ingredients, total, including 85%
gamma-Butyrolactone CAS # 000096-48-0

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR) 1910.1200. In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Tan/buff free-flowing granule. May cause moderate eye irritation. LD₅₀ for skin absorption in rabbits is >5000 mg/kg. Oral LD₅₀ for male rats is 2250 mg/kg and for female rats is 1288 mg/kg. Cholinesterase inhibitor. Toxic to fish, avian, wildlife, and aquatic organisms. Avoid high temperatures. Store below 100°F (38°C).

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POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate eye irritation which may be slow to heal. Corneal injury is unlikely.

SKIN: Prolonged exposure not likely to cause significant skin irritation. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

The LD₅₀ for skin absorption in rabbits is >5000 mg/kg. This material is not considered to have significant skin sensitization potential in humans.

INGESTION: Single dose oral toxicity is low. The oral LD₅₀ for male rats is 2250 mg/kg and for female rats is 1288 mg/kg. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

INHALATION: Single exposure to dust is not likely to be hazardous.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:

Excessive exposure may produce organophosphate type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, and convulsions. Chlorpyrifos produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposure that would be received during use of this product. A minor component present in this material in small amounts, when tested separately, caused adrenal effects in mice.

CANCER INFORMATION: Chlorpyrifos did not cause cancer in animal studies. NTP has concluded that gamma-butyrolactone should be considered not carcinogenic in animals.

TERATOLOGY (BIRTH DEFECTS): Chlorpyrifos did not cause birth defects in laboratory animals.

REPRODUCTIVE EFFECTS: Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals. Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

4. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash thoroughly with soap and water. Get medical attention if irritation persists.

INGESTION: Call a physician or poison control center immediately. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not give anything by mouth to an unconscious person.

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INHALATION: Remove to fresh air if effects occur. Consult a physician.

NOTE TO PHYSICIAN: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: None

METHOD USED: TCC

FLAMMABLE LIMITS

LFL: Not determined **UFL:** Not determined

EXTINGUISHING MEDIA: If product is involved in fire, use water fog, foam, CO₂; foam is preferred. Water, if used, must not enter sewers.

FIRE & EXPLOSION HAZARDS: Toxic irritating gases may be formed above 160°C (320°F).

FIRE-FIGHTING EQUIPMENT: Wear positive pressure, self-contained breathing apparatus and use full protective equipment if product is involved in fire.

6. ACCIDENTAL RELEASE MEASURES: (See Section 15 for Regulatory Information)

ACTION TO TAKE FOR SPILLS/LEAKS: Sweep up and place into suitable containers for disposal. Report large spills to CHEMTREC and consult Dow AgroSciences for assistance.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Harmful if swallowed. Causes eye irritation. Avoid contact with eyes. Keep out of reach of children. Keep away from food, feedstuffs, and domestic water supplies. For handling relative to end-use of this product, read the product label for further information concerning the use of personal protective equipment (PPE) under the Worker Protection Standard of 1993. Store in original package or containers in a dry area.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

These precautions are suggested for conditions with a high potential for exposure. If handling procedures are such that there is only a low potential for exposure, less protection may be needed. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINE(S): ACGIH TLV and OSHA PEL are 0.2 mg/m³ for chlorpyrifos, skin. ACGIH classification is A4. PELs are in accord with those recommended by OSHA, as in the 1989 revision of PELs. A 'skin' notation following the exposure guideline refers to the potential for dermal absorption of the material. It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. In dusty atmospheres, use a NIOSH approved dust respirator.

SKIN PROTECTION: No precautions other than clean body-covering clothing should be needed.

EYE/FACE PROTECTION: Use safety glasses.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: Not applicable

VAPOR PRESSURE: Low

VAPOR DENSITY: Not applicable

SOLUBILITY IN WATER: Insoluble

BULK DENSITY: 45 lb/cu ft

APPEARANCE: Tan/buff free-flowing granule

ODOR: Mercaptan-like

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Avoid high temperatures. Store below 100°F(38°C). Chlorpyrifos undergoes exothermic decomposition at approximately 130°C(266°F) which can lead to higher temperatures and violent decomposition if generated heat is not removed.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Alkaline materials. Consult manufacturer for specific cases.

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HAZARDOUS DECOMPOSITION PRODUCTS: If product is involved in fire, hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides can be formed.

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION:

(See Section 3 for Potential Health Effects)

For detailed toxicological data, write the address shown in Section 1.

MUTAGENICITY: Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential. For the minor component(s), in-vitro mutagenicity studies were negative in some cases and positive in other cases.

12. ECOLOGICAL INFORMATION:

For detailed ecological data, write the address shown in Section 1.

ENVIRONMENTAL FATE: MOVEMENT &

PARTITIONING: Based largely or completely on information for chlorpyrifos. Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Expected to be relatively immobile in soil (Koc >5000).

DEGRADATION & PERSISTENCE: Based largely or completely on information for chlorpyrifos. The photolysis half-life in water is 3-4 weeks. The atmospheric half-life is 1.4 hours. Degradation is expected in the soil environment within days to weeks. Under aerobic soil conditions the half-life is generally 30-60 days.

ECOTOXICOLOGY: Based largely or completely on information for chlorpyrifos. Material is very highly toxic to aquatic organism on an acute basis. (LC₅₀/EC₅₀ <0.1 mg/L in most sensitive species). Material is highly toxic to birds on a dietary basis (LC₅₀ between 50 and 500 ppm). Material is moderately toxic to birds on an acute basis (LC₅₀ between 51 and 500 mg/kg).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Do not contaminate food, feed, or water by storage or disposal. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the hazardous waste representative at the nearest EPA regional office for guidance.

14. TRANSPORT INFORMATION:

For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your Dow AgroSciences representative.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

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U.S. REGULATIONS

SARA 313 INFORMATION: To the best of our knowledge, this product contains no chemical subject to SARA Title III Section 313 supplier notification requirements.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

- An immediate health hazard
- A delayed health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA):

All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
CHLORPYRIFOS	002921-88-2	PA3 NJ3 PA1

NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).

PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).

PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

RATINGS:

- Health 1
- Flammability 0
- Reactivity 1

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND):

This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA which may require reporting of releases:

Chemical Name	CAS#	RQ	% in Product
Chlorpyrifos	002921-88-2	1	15%

16. OTHER INFORMATION:

Revised Sections 2,3,6,7,9, & 12

Reference: DR-0166-9461

Replaces MSDS dated: March 13, 1997

The Information Herein Is Given In Good Faith, But No Warranty, Express Or Implied, Is Made. Consult Dow AgroSciences For Further Information.